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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/674,749	CARNEY, MICHAEL G.	
	Examiner	Art Unit	
	MengYao Zhe	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-22 are presented for examination.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. The following claim languages are unclear and indefinite:

i) Claim 1, lines 4-5, it is unclear what is meant by "service agents...operate synchronously with respect to each other" <i.e. they operate synchronously in terms of what? Do they all service requests at the same time? If so that is impossible according to the claim since only one request is allowed in the dispatch section at a time. Or do they all perform something, whether it is returning to the service pool or executing a request, on clock edge?>

Line 4, it is not clearly understood what "service agents" may be <i.e. are they running threads? Can they be any type of resource such as

a file that needs to be read by a requesting thread? Can they even be a section of memory that needs to be accessed?>. Claims 19 and 21 have this deficiency as well.

Claim 22 has both deficiencies as claim 1 above.

ii) Claim 5, it is uncertain as to what it means by "the dispatch module operates in the requesting thread's context" <i.e. each running process or thread has its own context, meaning a section of memory stack assigned to it. A dispatch module is a running process, so it would have its own context. How can the context of a dispatch module be the requesting thread's context if they are different processes?>.

iii) Claim 12, it is ambiguous as to what it means for the first lock to not be involved with the completion of a service agent <i.e. what does this imply? Does it mean that the first lock will let in a thread into a dispatcher even if the service agent is not finished with servicing a previous thread? What if that previous thread is still waiting to be serviced? Does the lock let in another thread as well? If so, it conflicts with claim 1>.

iv) Claim 13, it is unclear what a service agent that is task based has to do with services are synchronous <i.e. being synchronous has nothing to do with being task-based.>. It is still unclear what it means for the services to be synchronous <i.e. Does it mean that they are all start servicing threads on clock edge? Again, if that is the situation, it conflicts with the limitations of claim 1.>.

v) Claim 14, it is unclear what "a single-threaded environment" is <i.e. is it an environment where a process can spawn only one requesting thread? Or does it mean that the service agent can spawn only one servicing thread?>.

vi) Claim 15, it is not clearly understood how a multi-tasking environment can only allow one task-based service agent to execute at a time <i.e. multitasking implies multiple agents are servicing threads at the same time. If only one agent can execute at a time, it is not a multitasking environment.>.

vii) Claim 16, it is unclear what the distinction is between "task-based service agents" and "thread-based service agents" <i.e. threads performs specific tasks. How are they different?>.

viii) Claim 17, it is unclear what "a technological advance" may be. Furthermore, the claim is confusingly phrased <i.e. It seems that this claim is saying using requesting threads is better than use service agents. However, claim 1 has both of these objects present in the claim.>

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-6, 11, 13-17, 19, 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armstrong et al., Patent No. 7.137.120, in view of "Static Analyses for Eliminating Unnecessary Synchronization from Java Programs," Aldrich et al., 1999 (hereafter Aldrich)

6. As per claims 1, 19, 21, 22, Armstrong teaches a computer-implemented apparatus for handling thread requests in a disparate computer environment, wherein the disparate computer environment arises because the threads requesting services operate asynchronously with respect to each other (Column 6, line 18) whereas service agents servicing the requests operate synchronously with respect to each other, comprising:

a dispatcher for allowing only one requesting thread into a dispatch section at a time (Column 6, lines 21-25, 39-41, 60-61);

a lock configured to operate as a service pool lock for synchronizing the requesting thread that is in the dispatch section with a service agent (Column 6, lines 33-41, 48-55);

Armstrong does not specifically teach another lock such that after the requesting thread releases the first and second lock, the service agent handles the request of the requesting thread.

However, Aldrich teaches enclosed monitors where enclosing monitor is entered first, and while it is held, an enclosed monitor is acquired. Both monitors are

then released later. This set of monitors are used for the purpose of protection from concurrent access by another monitor (Pg 23, Section 3.2, lines 1-4: Monitor is used in Java, and is the equivalent of a lock.)

It would have been obvious to combine the teachings of Armstrong, where a first lock is used as a service pool lock for the dispatcher to access service agents, with using a second lock as a dispatch lock to access the first lock so that both locks may be released after the requesting thread is being handled by the service agent, as taught by Aldrich, because the set of two locks offers protection from concurrent access by another lock.

7. As per claim 2, Aldrich teaches wherein the first lock and second lock are nested relative to each other such that the second lock is acquired while holding the first lock (Pg 23, Section 3.2, lines 1-4).

8. As per claim 3, Armstrong teaches wherein the requesting thread prepares parameters that are to be passed to the synchronized service agent (Column 6, lines 11-14).

9. As per claim 4, Armstrong teaches a dispatch module which passes the parameters to the synchronized service agent (Column 6, lines 4-10).

10. As per claim 5, Armstrong teaches wherein the dispatch module operates in the requesting thread's context (Column 6, lines 26-30).

11. As per claim 6, Armstrong teaches wherein the dispatch module selects a service agent that is free from a pool of services (Column 6, lines 36-39).

12. As per claim 11, Aldrich teaches wherein the first lock involves a synchronization point for dispatching the service request (Pg 23, Section 3.2 , lines 1-4).

13. As per claim 13, Armstrong teaches wherein the service agent is task-based in that services are synchronous (Column 6, lines 5-10: lines 5-10).

14. As per claim 14, Armstrong teaches wherein the task-based service agent operates in a single-threaded environment (Column 6, lines 40-41).

15. As per claim 15, Armstrong teaches wherein the task-based service agent operates in a cooperative multi-tasking environment, wherein only one task-based service agent can execute at a time (Column 6, lines 40-44).

16. As per claim 16, Armstrong teaches wherein a first pool of services includes task-based service agents, wherein a second pool of services includes thread-based service agents (Column 6, lines 5-10). Aldrich teaches wherein the first and second locks (Pg

23, Section 3.2, lines 1-4). Armstrong teaches using a lock to access first and second pools of service agents (Column 6, lines 48-55).

17. As per claim 17, Armstrong in view of Alderich does not specifically teach wherein utilization of the requesting threads constitutes a technological advance over the use of the service agents. However it is obvious to one having ordinary skill in the art at the time of the applicant's invention to see that utilization of requesting threads is an advantage since it allows for multiple requests to be made.

18. Claims 7-10, 12, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armstrong et al., Patent No. 7.137.120 in view of "Static Analyses for Eliminating Unnecessary Synchronization from Java Programs", Aldrich et al., 1999 (hereafter Aldrich) further in view of Feridun, Patent No. 5,898,832 (hereafter Feridun).

19. As per claim 7, Armstrong in view of Aldrich does not specifically teach wherein if a free service agent is not available from the pool, then the dispatch module requests and awaits the creation of another service agent that can perform the request of the thread.

However, Feridun teaches wherein if a free service agent is not available from the pool, then the dispatch module requests and awaits the creation of another service agent that can perform the request of the thread for the purpose of always having a service agent that are available to serve a request (Column 3, lines 26-29).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to combine the teachings of Armstrong in view of Aldrich with wherein if a free service agent is not available from the pool, then the dispatch module requests and awaits the creation of another service agent that can perform the request of the thread, as taught by Feridun, because it allows for always having a service agent that are available to serve a request.

20. As per claim 8, Feridun teaches a spawner that creates another service agent based upon the request from the dispatch module (Column 3, lines 26-29).

21. As per claim 9, Feridun does not specifically teach wherein if a free service agent is not available from the pool, then the dispatch module waits on an extant service agent to complete its assignment, wherein the extant service agent is used to service the request of the thread.

However, it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have the requesting thread wait on another service agent if no immediate service agent is available to perform the service.

22. As per claims 10, 20, Feridun teaches wherein when the service agent completes a request, notification is provided to the waiting requesting thread, and reenters the pool of free service agents in order to await another request from a requesting thread (Column 3, lines 38-46, 56, 63).

23. As per claim 12, Armstrong in view Aldrich further in view Feridun does not specifically teach wherein the first lock does not involve the requesting thread awaiting completion of a service agent that is handling the request of the thread. However, it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to see that since the first lock is only for accessing the second lock, the first lock does not involve the requesting thread awaiting completion of a service agent.

24. As per claim 18, Feridun teaches wherein the service agents constitute a legacy system which becomes substantially compatible with the requesting threads through use of the first and second locks; wherein the legacy system includes task-based code that becomes compatible with the requesting thread through the utilization of a lock (Column 3, lines 23-35). Aldrich teaches a second lock (Pg 23, Section 3.2, lines 1-4).

25. Claims 1, 19, 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armstrong et al., Patent No. 7.137.120 in view of Martin, Patent No. 7,080,375 (hereafter Martin).

26. As per claims 1, 19, 21, and 22, Armstrong teaches a computer-implemented apparatus for handling thread requests in a disparate computer environment, wherein the disparate computer environment arises because the threads requesting services

operate asynchronously with respect to each other (Column 6, line 18) whereas service agents servicing the requests operate synchronously with respect to each other, comprising:

a dispatcher for allowing only one requesting thread into a dispatch section at a time (Column 6, lines 21-25, 39-41, 60-61);

a lock configured to operate as a service pool lock for synchronizing the requesting thread that is in the dispatch section with a service agent (Column 6, lines 33-41, 48-55);

Armstrong does not teach a dispatcher lock for accessing the dispatcher.

However, Martin teaches a dispatcher lock for accessing the dispatcher (Column 4, lines 7-13, 41, 66-67; Column 5, lines 1, 13-17) for the purpose of having a lock to the dispatcher in order to allow only one thread at a time to access the dispatcher.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to modify the teachings of Armstrong with a dispatcher lock for accessing the dispatcher, as taught by Martin, so that both lock may be released after the service agent handles the request of the requesting thread, because it allows only one thread at a time to access the dispatcher.

Response to Arguments

27. Applicant's argument filed on 8/30/2007 regarding to claims 1-22 has been fully considered, but they are moot in view of the new ground of rejection.

Conclusion

28. Applicants' amendments necessitated the new grounds of rejection presented in this office action. Accordingly, **THIS ACTION IS MADE NON-FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MengYao Zhe whose telephone number is 571-272-6946. The examiner can normally be reached on Monday Through Friday, 10:00 - 8:00 EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached at 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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